THE hemist

Publication of THE AMERICAN INSTITUTE OF CHEMISTS, INC.

Vol. XXI

February, 1944

No. 2

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Chemist.

Publication of
THE AMERICAN INSTITUTE OF CHEMISTS, INC.
60 East 42nd Street, New York 17, N. Y.

Volume XXI

February, 1944

Number 2

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Entered as second class matter April 8, 1936, at the Post Office at New York, N. Y., under Act of August 24, 1912. Issued monthly except in June, July and August at 60 East 42nd Street, New York 17, N. Y. Subscription price, \$2.00 a year. Single copy, this issue \$0.25. Copyright, 1944, by The American Institute of Chemists, Inc.

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Printing Ink Industry Expands Steadily

F. Grant Schleicher, F.A.I.C.

President, W. D. Wilson Printing Ink Company

THE manufacture of printing ink, as well as its correlated industry of varnish making, has always been kept as secretive as possible, so that little is known of the men who were responsible for its development. Some names stand out over the years, but they are but few of the many.

A large number of men served entire lives in this industry with honor and profit, and contributed much to its development, but are not known to contemporary literature. The better known are those who after years of apprenticeship rose to be the head of their own companies. Most of them studied chemistry at night schools or from books and nearly all knew the basic scientific facts which governed the raw materials with which they worked.

The progress of the industry over the last one-hundred years shows that these men had acute powers of observation and the ability to create new products to meet the conditions which arose. New inks were often produced in advance of the requirements of the printing industry and new raw materials were utilized as fast as they were made available.

The writer, the third generation of his family in the printing ink industry, can state that some of the finest competition in some cases came from men who never saw college. Their products met all the necessary responsible for its early development. requirements, although they lacked our modern instruments and equipment.

The printing ink business was a relatively small one until about 1900, and the plants were few in number. Since that time, and particularly since 1918, the expansion of this industry has been very great.

At the time Gutenburg printed his Bible and started modern printing, the early printers made their own varnish and black ink. Linseed oil in small kettles of about fifteen gallon capacity was heated in the open at about 450 degrees Fahrenheit until the proper body was obtained. Varnish and lampblack were mixed and placed in a dauber and with this the ink was applied to the type.

From this early start, the literature on the subject, usually away behind

the art, shows the rate and methods of progress. In 1677, J. Moxon, in his Mechanick Exercises at London, gives linseed oil as the base and this is substantiated by J. Fertel at St. Omer, France, in his La Science Practique in 1723. The Encyclopedia Britannica, Ed. No. 6, London, 1823, gives a discussion of these inks and new recipes. Most of the printers made their own inks, as the amounts used were small, usually black with a limited number of colors of comparatively poor quality. It was not until the introduction of aniline dyes (about 1870) by Perkins that the industry had the materials from which to produce good colors.

In the United States, Rogers and Fowle started the first printing ink plant in Cambridge, Mass., 1747-1750. Charles Johnson started in Philadelphia on or about 1800. Other early concerns were Mathew Carey of Philadelphia, 1815-1860; M. Dunham of Cambridge, Mass., 1815; William Prout of New York City, 1805-1860; George Mather of Jersey City, 1816-1916. W. D. Wilson imported inks from England from 1848 to 1865 and then started manufacturing in Long Island City. H. D. Wade of Rochester started manufacturing in New York City in 1848, moved to Long Island City in 1872, and continued until 1900. George Morrill of Boston started in 1848; Ault and Wiborg in 1860, and J. K. Wright of Philadelphia from

1850 to 1930. There are many other names associated with this industry, and it is hoped that someone will make an historical record of them.

Another method of tracing the development of the printing ink industry is to check the patent literature. Omitting the early European patents, a study of the American patents will show the development here. (Usually the patents abroad were pirated as soon as printed). It is also true that many patents cover materials and formulations long known to the industry before being published.

After literature and patents covering the uses of linseed oil, rosin, and lead driers, we find E. Clark, U. S. Pat. No. 4102—1845, uses rubber (caoutchouc) with pitch, resins, linseed oil, and lampblack. Mathews, U. S. Pat. No. 7686—1850, claims the use of rosin oil, although this was used as early as 1830.

S. H. Turner, U. S. Pat. No. 10,006—1853, introduces indigo blue and indian red as toners for black ink. Calcined green oxide of chromium with linseed oil is claimed by G. Mathews, U. S. Pat. No. 17,688—1857. U. S. Pat. No. 12,733—1853 by C. A. Thompson introduces gum copal, litharge, and lead acetate to prepared linseed oil. This marks the introduction of fossil resins, although the varnish industry had used this at an earlier date. Underwood and Burt, U. S. Pat. No. 38,008—

1863, mention the use of prussian blue as a toner for black pigments. Steinert in U. S. Pat No. 39,968—1863, introduces the use of petroleum oils in printing inks.

With the introduction of the rotary press and high speed printing presses, the industry increased rapidly in the number of plants and their production. Since 1921, the trained chemist, instead of being the exception, is now a necessary part of every printing ink plant. The modern printing ink industry with its synthetic resins, oils, waxes, and tremendous number of new materials is more than ever dependent on the chemist. New and greatly improved printing inks are available and still better inks can safely be predicted. Likewise this industry will be an even greater field for better and more highly trained chemists.



Mattiello Appointed Professor

Dr. Joseph J. Mattiello, F.A.I.C., has been named adjunct professor of chemical engineering on the associated teaching staff of the Polytechnic Institute of Brooklyn, where he is conducting a course in paint and pigment technology. Dr. Mattiello is vice-president and technical director of the Hilo Varnish Corporation, Brooklyn, and president of the Federation of Paint and Varnish Production Clubs.

Postal Unit Numbers Wanted

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Dr. Sonneborn Honored on Seventieth Birthday

Dr. Ferdinand Sonneborn, president of L. Sonneborn Sons, Inc., was honored by executives and veteran employees on his seventieth birthday at an informal luncheon in the Waldorf-Astoria hotel, this city, January 10. The affair also served to commemorate Dr. Sonneborn's founding of the firm of oil refiners and manufacturing chemists which he has headed since its inception in 1904. Dr. Sonneborn was presented with a handsome testimonial book containing his portrait and signatures of all employees at the company's main offices in this city, its branches, and the Sonneborn refineries in Petrolia and Franklin Creek, Pa., and the Nutley, N. J. plant.

Symposium on X-ray Diffraction

A symposium on the industrial application of X-ray diffractions will be held at the Polytechnic Institute of Brooklyn, New York, Friday evening, February twenty-fifth and Saturday morning and afternoon, February twenty-sixth. Chairman of the symposium is Dr. Emil Ott of Hercules Powder Company.

Speakers include A. L. Patterson, Bryn Mawr College; C. S. Barrett, Carnegie Institute of Technology; L. K. Prevel, Dow Chemical Company; J. D. H. Donnay, Hercules Powder Company; W. O. Baker, Bell Telephone Laboratories, and M. J. Buerger of Massachusetts Institute of Technology.

The program is modelled after X-ray symposia which were held in England prior to the war. It is felt that our industries are behind England and Germany in the application of this scientific tool which is useful in all branches of chemistry, and that this symposium will be welcomed by industry. Inquiries may be sent to Dr. Isidore Fankuchen, 85 Livingston Street, Brooklyn 2, New York.



E. W. Reid, F.A.I.C. spoke on "The Chemical Industry and War" before a meeting of the Pittsburgh Section American Chemical Society, on January twentieth.

Research Institute

A chemical and metallurgical institute for the exchange of information among university and commercial scientists will be housed in the former home of the late Frank W. Woolworth at Glen Cove, L. I., N. Y., according to R. R. Loening, counsel for the Reynolds Research Institute.

The estate, was acquired several years ago by the Reynolds family, and Richard S. Reynolds, Jr., president of the Reynolds Metals Company. The Reynolds Research Institute developed the plan for stablishing the sixteen acre estate as a research institute. No industry will be associated with the proposed project.

Commercial Solvents Has Agricultural Sales Division

Hugh R. Stiles, F.A.I.C., has been named manager of the newly organized agricultural division of the sales department of Commercial Solvents Corporation, Mr. Stiles, who will make his headquarters in Terra Haute, Ind., is a graduate of the University of Wisconsin and joined the research department of Commercial Solvents in 1926 and more recently has been in charge of the biological research activities of the company. He has had an important part in the development of Commercial Solvents' process for producing B complex vitamins, particularly riboflavin, from natural sources.

Eat To Stay Young

Elsa Orent-Keiles, F.A.I.C.

Bureau of Human Nutrition and Home Economics Agricultural Research Administration, U.S.D.A. Beltsville, Maryland

MAN'S interest in the prolongation of human life is indicated by the constant occurrence of news items in the daily newspapers which report panaceas for ageing readily furnished to eager news-gatherers by men and women who happen to reach a ripe old age. Among the factors commonly regarded in these accounts as important in the prolongation of life is diet.

In certain parts of Europe during the Middle Ages, the average span of life is said to have been about twenty-five years. This is true of India at the present time. About 1880, the average expectancy of life in the United States was forty-three years. Thirty years later, the white man had a life expectancy of fifty-two years. This has now been extended to sixty-four years.

These gratifying results may be attributed to several factors such as decrease in infant mortality, better control of infectious disease and the maintenance of high standards of sanitation, etc. As a result of the everincreasing fund of information of the spertacular effects of the practice

of the "Newer Knowledge of Nutrition", it is the hope of many that the "wonders of diet" may serve to extend the life span beyond the traditional three score years and ten.

In considering the role that nutrition may play in the health, vitality and longevity of man, it must not be overlooked that there are a number of factors other than diet which interfere with normal development in youth and impair health in later life. Among these factors are congenital defects, infectious diseases of various kinds, too strenuous work or play, poor hygienic environment, and the like. Optimum nutrition so far as it is obtainable under such handicaps may be of great importance, but it will not insure good health and longevity.

Although since very early times the importance of diet in prolonging life and preserving vigor of body and mind has been emphasized, there are no available statistical records on humans which can be relied upon to answer many of the significant dietary questions regarding human longevity. Neither are there data showing what influence nutrition may have on the prolongation of man's life.

In recent years a beginning has been made in relating nutrition to the life span of experimental animals. In these investigations an attempt has been made to obtain at least preliminary answers to the problems of the value of physical exercise in later life, the dangers of becoming overweight, and the amount and quantity of food that should be eaten for promoting optimum health in later life.

These studies on rats indicate that the degree of body fatness in later life is more important than the amount of protein ingested or the degree of exercise performed. Very obese rats have shorter life spans than lean rats. On the other hand, underweight animals also live shorter lives. Healthy rats appear to survive longer as a result of exercise.

Striking evidence that healthful longevity is promoted by improving dietaries from "good" to "better" is afforded by another series of experiments where a number of generations of rats were raised successfully as judged by moderate standards. However, better growth and greater adult vitality, persistence of youthful characteristics and increase in length of life were brought about by improving the diet especially with respect to calcium in the form of either an inorganic salt or milk.

The relation of nutrition to ageing is unquestionable in the mind of those who have had experience with a colony of laboratory animals whose heredity and environment, freedom from all types of disease and dietaries are known and carefully controlled. In such cases it is possible to observe the effects of diets of optimum composition in contrast to the effects produced by diets lacking in one or another of a long list of nutrients. It is evident that such contrasting diets do not produce identical results.

The animals fed on optimum diet grow rapidly, mature early and exhibit every sign of good health, i.e., pink skin; thick, glossy hair; clear, bright eyes; lithe form and firm muscles and a stable nervous system. When, however, a diet is deficient in some one of the essential nutrients, growth is usually retarded; the skin is dry; the fur is inferior; the eyes are dull; the animals appear irritable and nervous and other signs of nutritional deprivation appear.

If the deficiency is complete, the length of life will usually in all cases be short. But, if only partial deficiency exists, impairment of health occurs and the typical chronic state of deficiency develops. For example, animals deficient in vitamin A are rough-haired and retarded in growth; their eyes are bloody, sore and sensitive to light; and their respiratory

and genito-urinary tracts become infected.

Vitamin D deficient animals show skeletal deformities due to abnormal bone growth. Rats lacking vitamin E grow to almost full adult size, but are unable to produce young. Animals depleted of thiamine develop distinct nervous symptoms peculiar to this particular deficiency.

Animals which receive all the essential nutrients but in inadequate amounts may reach a size approaching average. However, they show decline in weight and vigor at a much younger age than those receiving the diet containing adequate amounts of these nutritients. Their survival period is also shorter and abnormalities of reproduction are frequent. In some cases sterility, in other cases difficult deliveries, still-born young, destruction of newborn young by the mothers, deficiency of milk secretion in mothers, and slow growth of voung-these and other signs and symptoms of physiological inferiority are observed.

In striking contrast are animals fed a good diet. Here no obstetrical difficulties are encountered. Litters are large, the young are vigorous and uniform in size. No sterility, practically no infant mortality, no shortage of milk and no premature signs of sterility or shortening of life span occur.

Thus, even animals of good stock, free from debilitating diseases, and living in a favorable environment show marked adverse effects when fed nutritionally inadequate diets. This indicates that food is of marked significance in living processes. Although similar data on human subjects are lacking, and though the available data showing the effect of diet on man's life are questionable, there is abundant evidence that malnutrition is prevalent among people living in poverty, ignorance, or under unfavorable conditions of climate, soil, sanitation and available foods.

Moreover, the known functions of the essential nutrients the effects of deprivation of one or more of these dietary constituents, and the increasing number of cases of nutritional deficiency diseases reported in the medical literature, justify the assumption that good nutrition is one of the most certain means of adding "more life to the years".

On the basis of present knowledge, it appears, therefore, that the safest dietary regime for the ageing adult to follow, except for calories, is the same as that for any other age. Since reduced physical activity requires a lower caloric intake, the use of simple, easily digested foods, and avoidance of excessive amounts of rich foods and large meals are recommended. Overindulgence in the concentrated high-caloric foods should be curtailed.

In general the diet favorable for promoting healthy longevity should be moderate in amount and protein content, but the protein should be of good quality. This diet should be low in fat and should provide liberal amounts of the essential minerals and vitamins and some bulk. Thus the best diet for maintaining the body in health and vigor during younger years is also the "optimum diet" in later years.



Anhydrous Hydrogen Chloride Process Found

A new process for producing anhydrous hydrogen chloride which offers definite advantages over other known methods has been announced by the Grasselli chemicals department of E. I. du Pont de Nemours & Co. to aviation gasoline and synthetic rubber manufacturers as well as makers of vinyl chloride and synthetic resins.

Employing chlorosulfonic acid, the recently patented process produces anhydrous hydrochloric acid greater than 99 per cent purity without explosion hazard. This is done so simply that only a single control is necessary. Installation requires only standard materials of construction involving a lower investment than other methods. Additional advantages include a low operating expense and production of a usable byproduct, sulphuric acid.

Hercules Appointments

George A. Paine has been appointed district manager of the Synthetics Department of Hercules Powder Company, New York territory, and Paul L. Lefebvre has been appointed district manager of the Chicago territory of this department.

Alexander Awarded Medal

Jerome Alexander, F.A.I.C. consulting chemical engineer, New York, N. Y., was awarded a Townsend Harris medal by the Associate Alumni of the College of the City of New York, on November thirteenth. Dr. Alexander was particularly honored as one of the inventors of the ultramicroscope.

Seil Leaves Lavino Company For Day & Zimmerman, Inc.

Dr. Gilbert E. Seil, F.A.I.C., has resigned after seventeen years as technical director and consultant for E. J. Lavino and Company, Philadelphia, Pennsylvania, to become associated with the engineering firm of Day & Zimmerman, Inc., Philadelphia, as technical consultant.



Mark M. Luckens, M.A.I.C., First Lieutenant in the Sanitary Corps of the Army of the United States, is Laboratory Officer at the Station Hospital of Camp Shelby, Mississippi.

Gentlemen, How Do You Do It?*

Otto Eisenschiml, F.A.I.C.

IN THAT future day which everyone is constantly talking about, but which never seems to arrive, men will be judged, (I hope), by the usefulness of their activities, and not by our present unwritten standards. The top award should and probably will go to the creative men of genius, the Shakespeares, Beethovens, Gibbses, Einsteins. There are so few of them that no one should object. But who will be next in line? Logically, the lesser gifted inventive creators those not endowed with genius, but with talent - chemists, engineers, architects, writers, teachers and the like.

Please don't think I am trying to make heroes out of these men. Creators as a class are no less selfish than other human beings but, voluntarily or involuntarily, they advance culture and civilization by their daily toil. Perhaps Beethoven was not thinking of posterity when he wrote his symphonies; perhaps his compositions gushed to the surface by some internal pressure which he could not control. But even if we assume that

Beethoven composed solely because it made him happy to do so, his creations are nevertheless everlasting things of joy.

A chemist working for his daily bread may not think of humanity at all, may even despise it, but when he produces vitamins, concrete, enamels, nylon or sulfa drugs, he benefits his fellowmen more than he does himself.

Teachers make their living by training the minds and bodies of the coming generations, and writers feed the adult mind; both create those intangible assets which make a people strong. And let us not forget the mechanic who invented the automatic windshield wiper. I don't know who he was. I don't even know if he was one man or a group of men. I have never heard his name mentioned, I cannot find it in any encyclopedias of the great, or even in the advertising literature. But to me he stands as the symbol of the thousands of silent creative workers, whose brain products, each tiny in itself, in the aggregate spell progress. Laugh, if you wish.

Windshield wipers have saved many

^{*}Excerpt from an address delivered before the National Lawyers' Guild, Chicago.

lives on rainy days, besides adding comfort to the man at the wheel. Compared to what you lawyers as a profession have added to our comfort, safety and happiness, this may look small change, but let's for a moment take our hats off to the inventor of the windshield wiper.

Next in line on my blueprint of the world-to-come I have put those who create things by manual labor farmers, laborers, repairmen, and all those who produce something by the sweat of their brow. True, the farmer who plants a field with wheat more likely than not thinks of himself, not of his fellowmen, but he does feed them just the same.

The man who puts brick upon brick until a building is finished probably only figures his week's wages while he works; but he does enrich the community by his handiwork. So does the humble repairman. Hence, I bow to all farmers, artisans, repairmen and myriads of their kind, low as most of them may rate in our present social scale, or if judged by their bank balances.

Just below these creative workers I see the great mass of people who are not creators, but do mighty useful work — streetcar conductors, policemen, printers, stenographers, street cleaners, in short, that multitude who forms the backbone of our nation. They do not create, but their work is vital to our well-being.

Without them the farmer's wheat

could not come to market, chemists would have no laboratories, schools would have no heat or light, sanitation would be an impossibility. They form the groundwork for the world of creation. Omit them, and creators are like playwrights without actors, ushers, stagehands and audiences.

Below this neutral line the picture takes on a less pleasant aspect. We now step down to the purely selfish occupations. Don't get frightened, I am using the world "selfish" without any derogatory meaning whatever. I am talking about very honorable and highly respected occupations. Let me cite the profession of advertising men as an illustration; men who ask you to smoke Gloria cigarettes instead of Florias; men who are frankly out to get the lion's share of your spending money and make no pretense of benefiting humanity.

Whether you smoke one brand of cigarettes or another is admittedly important only to the makers of cigarettes; to everyone else it is as interesting as whether I win \$50.00 in poker from you or you from me. And I entertain the unorthodox opinion that if all cigarette manufacturers - or manufacturers of any other product for that matter - would stop advertising, our consumption would in the long run be about the same as it was: and I further hold that each brand would get about the same share of the total that it had gotten before.

Further down the neutral line we get into that twilight of occupations which I consider parasitical - real estate speculators who drive up prices without even building houses, usurers who charge two dollars for the use of one, men who foreclose on mortgages when the owner is in distress. They reap where others have sowed and offer nothing worthwhile in return. And, descending still farther, to the very bottom of the pit, we find the criminals; they are not only parasites, they are destructive parasites, and we try valiantly, if not always successfully, to rid ourselves of them.

Goodness — I forgot to mark a spot for the lawyers in my blueprint. But you are smart and will undoubtedly find your own niche without help from me.

There is no question in my mind that lawyers are the smartest people on earth. Whether you create anything, or benefit humanity is for you to say. Fact is that you are the most exalted group in our social set-up. "My son is a lawyer", is said with more pride than if he had discovered the law of gravity. No public poll by a newspaper but what lawyers predominate, no public movement but where you lead. Public prosecutors who fulfill their sworn duty to prosecute are elected governors of their state or groomed as presidential candidates. No doubt these fearless and conscientious men deserve to be elevated to high position - but is it not strange that the voters almost invariably choose deserving lawyers, not deserving chemists, engineers or teachers?

No one has offered the inventor of the windshield wiper a high public office, and no one cares two hoots about his opinion on public questions. Once upon a time a chief chemist of the United States, receiving the princely salary of three thousand dollars a year, originated our pure food laws, thereby protecting our very lives; was he drafted for a high political office?

Alas, alas. He was only a chemist. He did his sworn duty plus, so people figured he was a good man for his job and left him there. Incidentally, the government paid him about one fourth of what it paid its high priced lawyers. Gentlemen, how do you do it?

I often wonder what different people think about when they get through their day's work. A composer probably whistles a few bars of his latest opus and hopes it will become immortal; a chemist looks at the result of his experiments and feels he has inched science a bit forward; the bricklayer notices with pride that his building stands a few feet higher than it did the night before. All those things are what the poets call footprints in the sands of time.

But tell me, please, what does a lawyer think about in the evening? He may have won his case or lost it; what difference will it make a week later? Tomorrow will bring another case, and it, too, will effervesce. And so, like a streetcar conductor, who travels from one terminus of the line to the other, year in and year out, he is in the end about where he was when he started.

The conductor has helped transport thousands of people to their destination and hence has served his community well. All his passengers have been benefited, none at the expense of someone else. I suppose you lawyers feel the same way about a day's, a year's or a life's work. Do you?

Perhaps history offers an explanation for your social prominence. Prior to this century, men wishing to use their intellect could hardly enter any profession but that of law, medicine or the ministry. Most of them selected law, and in this manner we have come to believe that men of high intellect and lawyers are synonymous. With consummate skill you have been able to perpetuate this nimbus of superiority, to wit: when an ordinary mortal wishes to do business, he has to call on his customers; your customers, conversely, call on you. Gentlemen, you have my unmitigated admiration.

Jurisprudence has become quite complex, much too complex for me to understand. We have come a long way since the days of the Arabian Kadis who used to sit with crossed legs on a silken pillow in public mar-

ket places and dispense simple justice. If a Kadi could come out of the past and look at our present-day judicial system, he would be perplexed. Lower courts, superior courts, supreme courts. branches of the government at loggerheads about interpretation of our constitution; a test case, an appeal or two and a final decision. "Why don't you people", he would ask, "walk over to the Supreme Court in the first place and find out who is right? Why wait for months or years for an answer that should be had now?"

"Ah, but you don't understand", would be your reply. "When Congress passes a law, it really is not a law until the Supreme Court passes on its constitutionality."

"Then why doesn't Congress submit all laws to the Supreme Court before they are passed?" the simpleminded *Kadi* would persist.

"You are in a war", he continues.
"You are putting questions to the general staff of the army, and to the chemical and engineering experts of the government who help win this war. Do they ask that the cases be argued before them, appealed and reargued before they act? And where would the war be by the time they finally rendered their decision?"

Kadis, of course, know nothing about modern civilization.

I presume you are all frequent visitors to courtrooms, but has any one of you ever been a witness? Ah —

here is where you have missed something. Unless you have been a witness, you don't know what cattle feel like. When I am a witness, everyone's time in court is valuable except mine. I am told to appear at ten o'clock, and naturally, I am there on the dot. Respect for the dignity of the court, and all that. I find myself in sole possession of the courtroom. A few minutes later some lawyers appear, then the bailiff comes in. Great hustle and bustle and mysterious doings. His Honor is twenty minutes late, but I do not hear him excuse himself.

I sit around for an hour and a half, and finally my lawyer comes to me with the glad tidings that the case has been continued. I reappear three or four times and go through the same routine. At last, I am informed that the case has been settled out of court. Everyone seems in fine humor. I feel like a zero mark with a cross through it.

Has anyone of you ever been a member of a jury? Of course not; as lawyers you are exempt. Your work and your time are too precious for the work of a juror. I am only a chemist, and when I once asked to be excused from jury service, because I was in the midst of some experiments that should not have been interrupted, and could not have been without serious loss, a stern judge gave me a lecture on my sacred duties as a citizen. A lawyer sitting next

to me, who was handling a \$9.75 damage suit for a dented fender, was exempt. His sacred duty as a citizen was to get the \$9.75 for his client or die in the attempt.

While we are talking about courts, allow me a few words about expert witnesses, and let me flash a spotlight into this unholy corner of our judicial system. The very fact that you can line up as many experts on either side of any case as you choose — or can pay for — characterizes the system sufficiently. I hope that some day we may have court experts to give impartial testimony.

They would be selected by men in their own line, by the American Chemical Society if they are chemists, by the National Sewer Diggers Association, if they are sewer diggers. Each man's record would be examined under a microscope and, if found clean, he would be sworn in for life. For once the court would hear that truth, whole truth and nothing but, which everyone now is avowedly trying to bring out, but which at least one of the two contestants usually would give his right arm to conceal.

Are lawyers necessary? I think so, honestly I do. If all lawyers were abolished today, they would have to be recreated tomorrow. You see, we are all predatory animals, and if a man wants to take a hundred dollars away from me, I find it expedient to hire an expert to defend me; a bodyguard if physical violence is at-

tempted, 'a lawyer if the robbery is tried by more refined methods.

Lawyers, I contend, do fulfill a very useful function. More than useful I should think; for the world certainly would not pay you the homage it does if you were nothing more than bodyguards.

I would be deeply chagrined if you should think that I am hostile to the legal profession or that I am judging it with animosity in my heart. Quite on the contrary, I sometimes wish I had become a lawyer. If I have seemed a bit analytical, it is because I am openly, frankly and, with a green glint in my eyes, envying you. Gentlemen, how do you do it?



Price with Interchemical Corporation

Donald Price, vice-president of the Institute, has joined Interchemical Corporation's research staff to coordinate their research projects in the pharmaceutical and fine chemical fields. He was formerly technical director of the organic research laboratory of National Oil Products Company.

Dr. Price is a councillor of the American Chemical Society, a member of the Executive Committee of the American Section of the Society of Chemical Industry, and has been vice-president of The American Institute of Chemists since 1942.

Dr. Read Resigns from Rutgers University

Dr. William T. Read, F.A.I.C., resigned as dean of the School of Chemistry of Rutgers University, February first. Dr. Read, on leave with the National Roster of Scientific and Specialized Personnel of the War Manpower Commission, explained that he desired to continue his work with the government agency. Dr. Peter A. Vander Muelen has been acting head of the chemical department at Rutgers.

MacQuigg Gets Morehead Medal

The James Turner Morehead medal of the International Acetylene Association was presented to Charles Ellison MacQuigg, dean of engineering at Ohio State University, January 24. Professor MacQuigg was cited for "advancing the oxy-acetylene processes through metallurgical research and for leadership in engineering education."

Nickerson with Lawrence Company

Dr. Ralph F. Nickerson has joined the technical staff of the A. C. Lawrence Leather Company, Peabody, Mass., as senior research chemist. He formerly was at Mellon Institute for several years, where he engaged in cellulose, protein and fiber research and more recently was textile specialist with Firestone Tire & Rubber Company, Akron.

Symposium On Employment

A symposium held by the Chicago Chapter of The American Institute of Chemists at its meeting on December third, on the subject of employment, was especially planned to help students in chemistry and chemical engineering. Excerpts from the remarks of various speakers are given here.

Remarks

Forrest A. Anderson
Vice President, Wilkens-Anderson Company

The education of the chemist in the future must be more practical than it is today since more and more chemists are going into practical work. Not only must the chemical training be of a more practical nature, but the chemists should receive training in practical English, speaking, report writing and letter writing. All of these are more important than Keats and Shelley, for example.

More human comforts come from the chemist than from any other single profession. Advertisements in the magazines of large circulation have emphasized and are emphasizing the achievements of the chemist. More of these are along practical lines.

Fifteen Years Interviewing Applicants for Positions in a Packing Plant

Dr. Victor Conquest
Director of Research, Armour & Company

Dr. Conquest indicated that his remarks would be applicable to interviewing research chemists. Frequently one of the first questions he asked the applicant is, "Why do you think we have a research laboratory?" "Why do we hire research chemists?" Only on rare occasions is the answer given: "To make money." It should be realized that to "the Front Office" the research organization is just an expense because so many of its developments

are intangible. Even so, the chemist should ask himself, "Can I help this organization make money?"

A low scholastic average is not always held against an applicant. If a check with the professor shows that the individual is a hard worker and that some of subjects were only mastered with difficulty, then low scholastic grades are ignored.

Dr. Conquest indicated that he is not interested so much in what an applicant chemist will do in the next year or two. He is more interested in whether the man can grow; is he big enough to be president of the company. He definitely wants to avoid men who can't grow.

It is possible that the reason chemists do not have as much power in the management of business as they might have is because they are loathet to leave the laboratory. They are not willing to take managerial jobs, if this involves leaving the laboratory. Dr. Conquest noted that chemists in general do make excellent managers and that there is room for 200,000 chemists in managerial positions in American industry. It is up to us to see that the chemists realize this and take advantage of their talents.

In regard to salary he has noted the trend of salary with years of service. He has plotted a curve of responsibility, or "intensity of service" against salary. He noted that at first the responsibility went up faster than the salary, but the curves cross so that the man who had assumed great responsibility reached a place where he was apparently getting paid more than he was worth. Dr. Conquest pointed out that the man who makes frequent changes of positions with a number of companies may miss this phase of his development entirely, since he would not stay in any one place long enough for the curves to cross. He had three bits of advice for the newly employed chemist.

- (1) Be enthusiastic about your job; try to enjoy your work.
- (2) Try to do a little more than is asked of you.
- (3) Plan on doing the best job you know how as long as you keep that job.

The Professional Employment Agency

Tom Coffer

Molene Personnel Agency

Employment agencies in the past, and unfortunately many even in the present, who have an unethical understanding of social responsibility and progress have earned a reputation of being wolves and burglars and are out only for the money to be made. If money is the only incentive, no matter what the work may be, we are bound to fail.

In a larger sense, we are all after

money. For several thousand years at least, we have understood on good authority, that, "The laborer was worthy of his hire," but that word "laborer," means working with a heart, working cooperatively, for the best interests of employer and employee. This has been our objective at the Molene Personnel.

In our personnel placement agency, we naturally come in contact

with thousands of people; many well trained with telling backgrounds; others, young, with little experience, just starting out in this scientific adventure.

My procedure has always been to sit down with the applicant, talk with him comfortably, get his background, his aspirations and the spot on the road where at present he is now hesitating.

Then, in my mind, I look for the firm or laboratory which can use or is in need of my applicant's special development. Next, comes the task of selling, which, with a scientific minded individual, usually somewhat introverted in manner, must be tactfully handled. To the individual well advanced in his profession, it is simply a matter of finding the organization who can use his training and experience to the best advantage. To the beginner it is necessary to build up self-confidence, the enthusiasm and courage in the adventure of doing the kind of work that he has longed to do, but which has seemed so far in the distance.

Sometimes the personality problem needs the advice of a psychologist, specially trained in integrating the desires, ambitions and abilities of the applicant, and to bring out the best personality with reconditioning of social and cooperative ideas which may have s'ood in his way of advancement.

Aptitude tests are of great value

in selecting the specialized field that chemists may wish to follow.

During the last year we felt that the importance and the demands of the times required such a person in our organization, so we secured the professional services of Luella Canterbury, who is an expert in the psychological and vocational world. Her recommendations proved invaluable.

Let me give you an example. The case of Alice who came into my office looking for a job with a chip on her shoulder. She had the bachelor's degree from a good school with a major in chemistry, but was engaged in work very foreign to her training. I told her about a position that she would fit into very well, called the employer, made an appointment for her which she failed to keep. This happened three or four times. Finally, I took her in to see Mrs. Canterbury and the personal difficulty causing the insecurity was ironed out. The next interview we made for her clicked. She is now a real asset to her laboratory and the chemical field is richer for her efforts.

Another case history — Jim came in one morning. He had a degree in chemistry, had been working two years for a firm which could not use his full chemical background. He was earning \$195.00 per month. He had a wife and two children and was a bit discouraged. He wanted to

know if we could help him. I sensed the ability, the real creative love for work in the chemical field.

I told him I could help him by cutting his salary \$25.00 per month and charging him a fee for doing it. Would he be interested? He went out to see the employer and accepted the position at \$170.00 per month. I told him to go out, do a real job and he would have no regrets. In less than three months he headed one of the departments and was earning over \$300 per month.

May I give you one more case history — Dorothy was nineteen years old. She had two years of college chemistry, two month's experience in a defense plant doing routine laboratory work, and was making about \$40.00 a week with overtime. She quit because the long hours and alternating shifts were too much for her. She wanted a day job 40 hours per week and \$200.00 per month.

Now my first step with Dorothy was to get a breakdown to reasonableness. I told her for at least three months she would be of little value to a new employer. We could place her in a laboratory at \$110.00 a month, where she would work under supervision and proper training. She is on the job, developing rapidly and very happy.

Sometimes we have petty grievances against employers that we must adjust for the employers best interest. A young lady with excellent chemical background went to work in a laboratory. They explained her work, told her she would have a man to help her and would be given a raise in six months.

She did a fine job, the company lost the man, and the girl herself had to remove heads off the drums, scoop out her own materials and at the end of nine months, had had no raise, although she had been doing two people's work. She came in to see me, told me she wanted another position. I advised her to go back and explain the situation to her employer before making a change. The next morning when she was ordered to take the heads off twenty drums, she told her chief exactly how she felt, and explained her situation to The raise was immediately granted, the employer called me and thanked me for helping him to keep a valued employee. Now, I could have placed this girl in a new position and earned another commission, but I felt that reason, fairness, and understanding should solve the problem, that the employer needed her and better cooperation could be obtained and the employer protected.

You know, gentlemen, there is one word in chemical terminology that I have applied to my work. The word is "synergism." Many very fine men in this city, along with a great many applicants have helped me put "synergism" into action.

SYMPOSIUM ON EMPLOYMENT

Petroleum Chemists and Petroleum Engineers

M. T. Carpenter

Standard Oil Company (Indiana)

At the present time the personnel man is regarded as the bottle-neck in research and in production because he is not able to go out and hire all of the manpower necessary to get the job done.

When he inquired of one leading university if he could interview some of their graduate engineering students for prospective positions, the head of the department inquired if he could release enough chemical engineers from industry to teach his students so that he could graduate them.

Frequently when he goes to a university to interview students the head of the department keeps a close eye on him to be sure that he doesn't hire away half of his faculty.

Today many of the students are flattered to find some of the largest corporations in the country competing for their services. As a result, some of the students give unusual interviews and make unusual demands. However, these seem to be the exception rather than the rule,

and it is obvious that most of the students have kept their feet pretty well on the ground.

It is believed that much of this is due to the practical efforts of the faculty. Most of the students are looking for the kind of job where they can work towards the future and build up a reputation for themselves.

At the same time, however, there is a tendency for the newly hired worker to feel that he is not doing as much as possible for the war effort. This has resulted in men running out from under opportunities right in their own jobs. Much of this is due to the war restlessness and it is up to the research directors and the personnel men to demonstrate to the chemist that his job really is important.

It is also important to realize that man is inherently a dignified animal. The employer should help his workers to live in a dignified manner; to create situations in their own organization so that a man can work with dignity in his own job.

Being Interviewed

J. T. Weber, Student

Department of Chemical Engineering — Illinois Institute of Technology

Ordinarily applicants do not adequately appreciate that a job is just a mutual agreement between two parties.

Frequently the applicants are interested in such questions as "How

do you evaluate men in your organization?" "How do you evaluate their tra.ning?" "What is your turnover in my type of position?" "Do you permit leave of absence for a worker to go back to school and improve his education?" "What is the position of your Company in its field?" "What is your philosophy of research and development; are you mostly interested in improvements and refinements on old processes, or are you interested in the radically new?"

Frequently the employer does not

give enough regard to part time work done by the student earning his own way through school. This work can be indicative of the industry of the student just as much as his grades. Also the breadth of the electives are not considered adequately. Sometimes new and useful outside thought can be brought in through such electives.

There is a decided objection to group interviews since some of the individuals are not able to show their wares to best advantage under such conditions.

Being Interviewed

H. H. Pokras, Student

Department of Chemistry - Illinois Institute of Technology

There are several types of interviewers. (1) The silent type who usually sits behind a desk and lets the student come in and sit down, stammer around for awhile, volunteering such information as he thinks the interviewer would like and finally after a long silence, getting up and leaving. (2) There is the powerhouse type who tries to do all the talking and makes it difficult for the student to say anything about himself. (3) There is the intermediate type that most students prefer. He is willing to talk some and to listen (4) There are some interviewers who take particular pains to try to indicate to the students the type of work available, the type of equipment, etc., showing him pictures of laboratories, pilot plants, etc.

In general, the students prefer to talk with technically trained men, but too often the technically trained men are not good personnel men. The students object to interviewers requiring expensive transcripts and numerous forms which may be difficult to obtain, unless the interviewer has more than a passing interest in the individual.

The students violently object to interviewers who are just shopping around without having jobs to offer, but who are trying to see what kind of men they could get if they did have a job to offer. The students

SYMPOSIUM ON EMPLOYMENT

especially appreciate being notified at the earliest possible moment of decisions reached as a result of the interview. Too many companies do not realize that many relationships are established and many lasting impressions are formed during the initial interview. Every effort should be made by the company to leave the man interviewed a friend of the company if not an employee.

Excerpts from the QUESTION AND ANSWER PERIOD

Question: "Will women chemists be displaced or dropped after the war?"

Answer: (1) This will be partly solved by the tendency for the women to marry.

(2) Some women will definitely stay in the laboratories since they have desirable talents, especially as technicians and analysts.

Question: "Should one really stick to one job rather than work in several to obtain a varied experience or to become oriented?" always pick one's life work at the first try, but don't take too long to become oriented. Too much jumping around is usually frowned upon. The employers are entitled to know the reasons for changes. At this point a definite objection was expressed of the practice of some large companies who hire fifty men each year with the full knowledge that they would keep the "cream" and release at least twenty-five at the end of the year.

Answer: It is obvious that one can't

(#)

D. A. Bunce, formerly at Volunteer Ordnance Works, has been appointed superintendent of the Mansfield, Massachusetts, plant of Hercules Powder Company.



Dudley W. Figgis, executive vicepresident of American Can Company, has been elected president to succeed M. J. Sullivan, who will become chairman of the board. (4

Folic Acid Study Funded

A supplementary grant of \$2,300 from the Office of Scientific Research and Development for continuation of folic acid studies at the University of Texas Biochemical Institute, under direction of Dr. Roger Williams, has been announced by the school's board of regents. Wilmon W. Meinke has been named as Dr. Williams' assistant on the project, which deals with extraction of vitamins from spinach.

Technical Achievements

The output of American laboratories and factories has outstripped the most hopeful expectations, Dr. Vannevar Bush, president of the Carnegie Institute of Washington and director of the office of Scientific Research and Development of the office of Emergency Management, declared in his acceptance address of the 1943 Edison Medal of the American Institute of Electrical Engineers, presented January 26th. Dr. Bush said that this achievement of American laboratories was proof that free enterprise is superior to a regimented society.

Atlas Powder Names Goepp to Research Post

Dr. R. Max Goepp, Jr., has been appointed director of organic research for the Atlas Powder Company, Wilmington, according to M. J. Creighton, director of the industrial chemicals department. Dr. Goepp, who joined Atlas Powder in 1932 as a research chemist, was graduated from Lehigh University and took his doctorate at Oxford University, England.

Egloff Talks on Petroleum

In a series of addresses before the local sections of the American Chemical Society at Syracuse, Albany, Binghampton, and Beacon, Dr. Gustav Egloff, president of the Institute, spoke on petroleum in the war.

Oberst Heads Biochemistry Research for Merrell

Dr. Fred W. Oberst has been appointed head of the newly organized biochemistry department of the research laboratories of the William S. Merrell Company, pharmaceutical manufacturer, Cincinnati. Prior to his recent transfer to Cincinnati, Dr. Oberst was actively engaged in biological research on narcotics and drug addiction at the United States Public Health Service Hospital, Lexington, Kentucky.

Randall Appointed

J. W. H. Randall, F.A.I.C., has been appointed as chemical consultant and technical adviser to the sales department of the New York Quinine and Chemical Works.

Everett Elected Vice-President

Ralph H. Everett, F.A.I.C., formerly with Keystone Varnish Company, has been elected executive vice-president and general manager of M. J. Merkin Paint Company, New York, N. Y.

Hercules Research Expenditures

Research and development expenditures, occasioned by war-time industrial needs, increased to \$2,887,000 during 1943, the annual report of the Hercules Powder Company revealed. The employment of women totaled 24 per cent of the total payroll.

Course in Russian

J. G. Tolpin, F.A.I.C., editor of the Survey of Foreign Petroleum Literature, Universal Oil Products Company, will give a course in elementary Russian at the University College of Northwestern University next semester. Information about the course may be obtained from the University.



Dr. M. L. Crossley, F.A.I.C. spoke before a joint meeting of The Hampton Roads Chemists' Club and the Norfolk County Medical Society, Norfolk, Virginia, recently on the subject of "The Role That Chemistry has Played in the Development of the Sulfa-drugs."

Monograph on Cartels

A seventy-five page monograph on economic and political aspects of cartels has been prepared by the Anti-trust Division of the Department of Justice. The monograph tells of the principal types of international cartels in existence, how they are used to control markets and production, how they are employed to evade national laws, and how policies and use are made of them as weapons for economic warfare.

Manning Vice-President

Paul D. V. Manning, F.A.I.C., director of research of International Minerals and Chemical Corporation, has been elected vice-president of the corporation.

Necrology

Lemuel 99. Apcock

Lemuel M. Aycock of the California Chemical Company, New York, N. Y., and a member of The American Institute of Chemists since 1932, was killed in an automobile accident at Jonesville, South Carolina, December 26th. He was forty-nine years of age.

A native of Jonesville, Mr. Aycock attended the Presbyterian College, Clinton, South Carolina, the University of South Carolina, Yale University, and Syracuse University. From 1924 to 1925, he was associated with John T. Stanley Company, New York. He later was affiliated with General Chemical Company, D. Van Nostrand and Company, and in 1930, he joined the Swann Chemical Company.

Arthur J. Dobman

Rev. Arthur Joseph Hohman, S.J. chairman of the department of chemistry of St. Peter's College, Jersey City, New Jersey died recently. A native of Buffalo, New York, Father Hohman received the M. S. degree at Woodstock College. He became a member of The American Institute of Chemists in 1936.



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January Meeting

A meeting of the National Council of The American Institute of Chemists was held on Friday, January 7, 1944, from four to six o'clock in the Uptown Club, 27th Floor, Lincoln Building, New York, N. Y., with Dr. Gustav Egloff presiding.

The following officers and councilors were present: Messrs.: G. Egloff, F. A. Hessel, D. B. Keyes, R. E. Kirk, R. J. Moore, H. S. Neiman, D. Price, J. M. McIlvain, A. Lloyd Taylor, and M. Toch. Drs. E. H.

Northey, E. L. Luaces, and Miss V. F. Kimball were present.

The matter of amending the Constitution to add three regional vicepresidents was discussed, and upon motion made and seconded, the president was requested to appoint a committee to decide what national regions or areas of the United States should have regional representatives, and to make recommendations for such representation.

Dr. Kirk, chairman of the Committee on Unionization, distributed a brief digest of the letters received from councilors and chapters regarding the subject, which contained expressions of diverse points of view. Dr. Kirk also distributed a statement of policy prepared by the Committee for the consideration of the Councilors.

The Council discussed the eight recommendations contained in the statement of policy, and made suggestions about changes of wording and emphasis on the professional standing of chemists as contrasted to non-professional workers. The Committee noted the suggestions of the Council for the purpose of presenting a revised report.

Upon motion made and seconded, the application of chemists in Louisiana for a Charter for a Chapter of the Institute, was granted.

The period designated for the council meeting having come to an end, the meeting was adjourned.

Application for Membership

For Fellow

V. Joseph Altieri

Chief Chemist, Eastern Gas and Fuel Associates, Rover Street, Everett 49, Massachusetts.

A:den Watson Chapman

Assistant Technical Supervisor, The Celotex Corp., P. O. Box 26, Morrero, Louisiana.

Arthur R. Choppin

Professor of Chemistry and Assistant to Dean, College of Chemistry and Physics, Louisiana University, Baton Rouge, Louisiana.

Robert C. Cooney

Research Chemist, H. Kohnstamm and Co., 87 Park Place, New York, N. Y.

John P. Goulding

Chemist, Calco Chemical Division of American Cyanamid Company, Bound Brook, N. J.

Edwin B. Henderson

Chief Petroleum Chemist, Department Weights and Measures, Los Angeles, California.

Ervin W. Hopkins

Head, Meat Research Department, Armour & Co., Chemical Research Lab., Chicago, Illinois.

William H. King

Chief, Chemical-Toxicological Section, Louisiana State Health Department, New Orleans, La.

Robert W. Matlack

President and Technical Director, George D. Wetherill and Company, Inc., Philadelphia 6, Penna,

Joseph Sarto McGrath, Rev., C.S.C.

Head, Department of Chemistry, University of Portland, Portland, Oregon.

Oliver M. Morgan

Research Chemist, National Aniline Division, Allied Chemical & Dye Corporation, Buffalo 5, N. Y.

Robert P. Parker

Assistant Director, Organic Section, Calco Chemical Division, American Cyanamid Company, Bound Brook, N. J.

Oliver H. Reeder

Chief Chemist, Baltimore Copper Paint Company, Baltimore, Maryland.

Edmund A. Reilly

Chief Chemist, Philadelphia & Reading Coal & Iron Company, Pottsville, Pennsylvania.

Orin W. Rees

Chemist and Head, Analytical Division, Illinois State Geological Survey, Urbana, Illinois.

Hayden Roberts

Laboratory Director, Halliburton Oil Well Cementing Company, Duncan, Oklahoma.

Helen M. Robinson

Assistant Chemist, U.S.D.A., Southern Regional Research Laboratory, New Orleans, La.

Philip W. West

Assistant Professor and Head of Division of Analytical and Industrial Chemistry, Louisiana State University, Coates Chemical Lab., Baton Rouge, Louisiana.

For Member

Arthur Weiss

Chemist in Charge, Fordham Hospital, Southern Boulevard the Bronx, N. Y.

For Associate

Howard C. Klein

Chemist, National Oil Products Company, Harrison, N. J.

CHAPTERS

Baltimore

Chairman, Albin H. Warth

Vice-chairman, Walter H. Hartung

Secretary-treasurer, Edward M. Hanzely 3816 Kimble Road

Baltimore 18, Maryland

Council Representative, Maurice Siegel
News Reporter to The Chemist, Ralph Lamenzo

The Baltimore Chapter held its first official meeting under its new charter at Loyola College on January 27th. The new chapter has reported excellent progress, showing a present membership of 43 against a previous 30 charter members.

The speaker for the evening was Mr. E. L. Luaces F.A.I.C., of the Chemicals Development Corporation, Dayton, Ohio, also chairman of the Miami Valley Chapter of the Institute. The subject of his talk was Active Carbon — Its Manufacture and Uses.

Dr. Luaces defined the use of the term "active carbon" whereby minute pores left by the gases during activation were capable of absorbing either gases or coloring matter as in syrups, etc. The carbon is activated by steam at high temperatures. This heating process renders the carbon very receptive to holding on to these undesirable gases or coloring matter. Yields in the production of activated carbon may be adjusted to burn off only 20 per cent or as high as 80 per cent of the carbon, depending on the type desired, and the performance requirement.

Until recently it has been generally accepted that production of a good activated carbon required starting with a dense medium raw material such as peach kernels. However, Mr. Luaces showed that this is not true. A good activated carbon could be made from sawdust and many other substances. It has also been generally accepted that there were two types of activated carbon, each made for a specific purpose. It was shown that there is but one active carbon, the difference being in the degree of activation in which the temperature, time and amount of raw material consumed were determining factors. These different phases of control influence the size of the pores which in turn characterize the activated carbon as a good gas or color remover.

Dr. Luaces then showed the varied uses of this activated carbon in the absorption of gases and coloring matter in industry. One case cited was where the absorption of gases is a continuous cycle; one absorption tower is in operation absorbing gases while the second tower is having its carbon activated and the third tower, after being activated, is cooling down, preparatory to being put into use.

Following the lecture Dr. Luaces gave a very interesting talk on Personnel Relations. His views on this subject certainly should be more universally followed.

Chicago

Chairman, Hilton I. Jones

Vice-chairman, H. R. Kraybill

Secretary-treasurer, Charles L. Thomas Universal Oil Products Company Riverside, Illinois

Council Representative, Howard Adler

The Chicago Chapter will meet at Huyler's Restaurant, March third, at 6:00 p.m. Dr. Herman A. Wagner, consulting mining and metallurgical engineer, will speak on "Unionism and Professionalism in Scientific and Technological Fields." Guests are welcome.

Los Angeles

Chairman, R. J. Abernethy

Secretary-treasurer, Imo Baughman Simpson 640 N. Kenmore Avenue Los Angeles, California

Louisiana

Acting Chairman: Harold A. Levey

8172-33 Oleander Street, New Orleans, La.

Gustav Egloff, national president of the A.I.C., spoke to members of the Institute in New Orleans, December seventh. Forty-three were present including the following members of the Institute: P. F. Bailey, R. A. Butcosk, R. T. Casselman, P. R. Dawson, T. H. Hopper, H. A. Levey, D. F. J. Lynch, J. D. Reid and C. S. Williamson, Jr. The dinner was held in quaint old historic Maylie's Restaurant within which grows an enormous wisteria vine.

Dr. Egloff spoke on the benefits to be derived from the Institute. He also pointed out that chemists as a class are under-paid and that they deserve at least as much public respect as the more organized professions, such as law, medicine, or dentistry. Professor C. S. Williamson, Jr., head of chemical engineering at Tulane University and one of the few Life Members of the Institute, suggested that in forming a Louisiana Chapter of the Institute, H. A. Levey, as acting chairman and J. David Reid, as acting secretary-treasurer, obtain the necessary signatures to petition the National Council for a Chapter and that prospective members be sent application forms.

Following the dinner, the guests adjourned to the auditorium of the chemistry building of Tulane University where Dr. Egloff addressed the Louisiana Section of the American Chemical Society on the subject, "Petroleum in the War and Postwar Period."

Miami Valley

Chairman, E. L. Luaces

Vice-chairman, J. M. Purdy

Secretary-treasurer, John R. Fisher, Jr. Chemical Developments Corporation 314 W. 1st Street, Dayton 2, Ohio

Council Representative, Harvey G. Kittredge

CHAPTERS

A meeting of the Miami Valley Chapter was held Friday evening, January 14th, at The Engineers' Club in Dayton, Ohio.

Dr. James R. Withrow, F.A.I.C., professor and chairman of the Department of Chemical Engineering of The Ohio State University, spoke on "Synthetic Rubber."

Dr. Withrow's remarks were well received by the fifty-four members and guests present. A series of lantern slides showing the various processes in use in this country and some of the more important installations for the manufacture of synthetic rubber was shown through the courtesy

of Colonel Bradley Dewey, the Rubber Director. Also, through the courtesy of The Dayton Rubber Manufacturing Company, samples of various types of synthetic rubber and of articles made of such substances were exhibited.

The next meeting of the Chapter will be held in Cincinnati during the month of February, and the March meeting will be held in Columbus. These out-of-town meetings are held regularly as part of the plan of the Miami Valley Chapter to have members throughout its area participate in the activities of the chapter and The Institute.

New York

Chairman, M. L. Hamlin

Vice-chairman, Franklin H. Bivins

Secretary-treasurer, Lloyd W. Davis E. F. Drew & Company 416 Division Street, Boonton, New Jersey

Council Representative, A. Lloyd Taylor

The New York Chapter met January 14th at 2 Park Avenue, New York, N. Y. Ralph T. Walker, architect of Voorhees, Walker, Foley, and Smith, spoke on "The Professional Man." The American Institute of Architects, of which Mr. Walker is a former president, is recognized as one of the outstanding professional groups, in this country, and the problems which it encountered in its development are

similar to those which face the professional organization of chemists. Dr. Walker's paper will appear in the March issue of The Chemist.

Dr. Howard I. Cramer, of the development department (rubber chemicals) of Sharples Chemicals, Inc., spoke on the "New Products of Sharples Chemicals, Inc." The Sharples organization is active in research and credits its expansion to

research started in 1923 for a new method of manufacture of amyl alcohols. It pioneered in the chemistry of pentanes and amyl compounds, and in the catalytic production of aliphatic amines, and developed many new products. It now employs 760 people to manufacture sixty products, and has over a hundred products in the laboratory stage waiting for application to civilian uses. Products of interest to the automotive industry and to the pharmaceutical field are in active production for war uses. Several are of outstanding importance in the synthetic rubber fields as accelerators, plasticisers, vulcanizing agents, etc. Sharples devotes a large percentage of its gross sales income to research.

Niagara

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Vice-chairman, Lawrence H. Flett

Secretary-treasurer, M. R. Bhagwat Mathieson Alkali Works, Inc. Niagara Falls, New York

Council Representative, Arthur W. Burwell

Alternate, Lothar A. Sontag

Reporter to THE CHEMIST, Frederick Koethen

Pennsylvania

Chairman, Glenn E. Ullyot

Secretary-treasurer, Kenneth E. Shull 23 Bala Avenue Bala Cynwyd, Pennsylvania

Council Representative, John M. McIlvain

The Pennsylvania Chapter held a meeting on November sixteenth, at Temple University.

Prior to the business portion of the meeting, members and their guests attended an informal dinner in the Faculty Club Room of Temple University's Mitten Hall.

The speaker of the evening was Dr. Gustav Egloff, director of research at the Universal Oil Products Company, and president of the American Institute of Chemists. Dr. Egloff's topic was "A New Industry from Petroleum."

In a world at war we find the United Nations controlling over 90 per cent of the world's petroleum resources—the United States over 60 per cent; and, despite the fact that much publicity is being given to statements that the end of our oil supplies is in sight, we have actually barely touched the potentiality of our country.

Initially the various fractions obtained in petroleum refining were used as such. Today, however, the trend is toward controlled chemical reactions whereby individual hydrocarbons, hydrocarbon mixtures of definite composition, and special derivatives are produced by means of such processes as cracking, polymerization, dehydrogenation, hydrogenation, and oxidation.

The catalytic cracking process not only produces high octane gasolines, but also yields olefins, isoparaffins, and aromatics, which may be further treated to produce other valuable products.

Polymerization of the propylene, butylenes, and pentylenes present in cracked gases, with subsequent hydrogenation, yields an aviation gasoline of 90 octane rating. Isooctane may be prepared by polymerization of isobutylene in the presence of phosphoric acid, and hydrogenation of the resulting isooctene to isooctane.

Of the 850,000 tons of synthetic rubber to be manufactured during the coming year 735,000 tons are to be of the Buna S type. This will require the use of enormous quantities of butadiene. By means of dehydrogenation butadiene can be produced from normal butylene which, in turn, is obtained from normal butane, Dehydrogenation and cyclization applied to naphtha in the hydroforming process are being used on a large scale to increase our supplies of benzene available for the manufacture of alkyl aromatics, and toluene for the manufacture of T.N.T.

In the alkylation process isobutane is alkylated by ethylene in the presence of sulfuric or hydrofluoric acid to produce 2,3-dimethyl butane. Isooctane results when isobutane is alkylated by butylene in the presence of the same catalysts. Tryptane, a hydrocarbon with 50 per cent higher power output than isooctane, is prepared by the alkylation process.

Ethyl alcohol, ethyl ether, glycol, acetaldehyde, vinyl chloride, etc., are now being manufactured from ethylene gas. Likewise isopropyl alcohol, glycerine, and nitroglycerin are being produced from propylene.

Today there is being obtained from petroleum a host of special hydrocarbons for use in aviation fuel blends, in the manufacture of synthetic rubber, explosives, insecticides, fungicides, fruit ripeners, pharmaceuticals, anesthetics, plastics, resins, solvents.

Washington

President, L. F. Rader, Jr.

Vice-president, L. R. Heiss

Treasurer, T. H. Tremearne

Secretary, Ernest J. Umberger 207 Albany Avenue, Takoma Park, Maryland News Reporter to THE CHEMIST, S. W. Griffin

Council Representative, T. H. Tremearne

The first meeting of the current year was held by the Washington, D. C. Chapter on January 15th, at the Wardman Park Hotel.

Following a reading of the minutes of the last meeting, President Rader introduced Dr. Walter J. Murphy, Editor of *Industrial and Engineering Chemistry*, who gave a most interesting and informative talk on "This Is A Chemist's War."

No army can fight without the products the chemist makes and, in the present war, it is literally true that the sinews are provided by the chemist and chemical engineer. In expanding to meet the unprecedented demands of our own enormous military forces, and in augmenting the inadequate supplies of allies, American chemists and chemical engineers have fully extended themselves not only in improving methods of production of known commodities, but in the creation of new and substitute materials heretofore unknown or undeveloped in practical application. Chemical and technological achievements with respect to synthetic rubber, 100 octane gasoline (and gasoline addatives), dehydrated, compressed, and frozen foods are outstanding examples. Equally spectacular advances have been made in the chemistry and technology of plastics, a field of supreme interest to the chemist.

In the realm of plastics, ethyl cellulose coatings have extensive military applications. There now are ethyl cellulose coatings which remain tough and flexible in the cold. These find application in the protection of military machinery and other metal objects from corrosion by sea water and, by reason of light weight and toughness, as actual metal substitutes. The army water canteen is a good illustration of such use as a substitute metal. Styrene and polystyrene are other important thermoplastics which possess desirable properties, including resistance to the action of water and chemicals, transparency in film and coating compositions and in ability to serve as a base in plastic molding. Specific applications are in the making of len's blanks and in the impregnation of porous castings. Vinylidine chloride finds use in the manufacture of extruded tubing, sheeting for tank linings, fire-proof coatings, military screening and medicine vials. "Dry Film," a new development, provides exceptionally high resistance between electrical conductors. Nylon is used in making gunswab bristles, tent and parachute cloth, elastic rope, etc. Nylon rope is used to move "jeeps" and artillery pieces by tackle and in taking up shock when glider planes are towed.

Noteworthy advancements also have been made in the chemistry of military medicine as in the development of Atabrine, a substitute for quinine in the treatment of malaria; in the discovery of new and improved sulfadrugs for the combat of wound infection; and in the application of terpene base and methyl hallide insecticides.

The talk was supplemented by an excellent display of exhibits including blocks of "foam glass" for temperature insulation, fabrics made from milk, paper fertilizer bags moisture-proofed with melamine resin, and powdered concentrates for the preparation of true fruit juice drinks by the addition of water.

New business consisted chiefly of a discussion of the general situation regarding the question of unionization of chemists. After some consideration it became evident that the Washington Chapter is, as yet, not prepared to adopt a policy and the matter was held over for further study. The next meeting will be held on March fourth.

For Your Library

LABORATORY MANUAL OF EXPLOSIVE CHEMISTRY. By Allen L. Olsen and John W. Greene. John Wiley and Sons, Inc., New York. 1943. 106 pp. 53/4" x 83/4". \$1.75.

This laboratory manual is based upon experience with the short course on explosives for the Army. More elaborate details and precautions in manipulations are given than in the required "Technical Manual" of the War Department, and safety is aimed at, without sacrifice of the necessary practical experience.

The inculcation of an attitude of carefulness, safe-conduct, neatness, and precision of reports, is stressed. The organization of the explosives laboratory discussed in this book is such that one person is entirely responsible for all operations. Experiments which present potential hazards should be demonstrated with proper technic. The safe storage of

explosives is described. Training for fire hazards must be given, and the safety engineering features of health preservation must be enforced, always with the willing understanding of the persons working in the plant. To create a respect for explosives, a demonstration of the power in a blasting cap to damage a tin-can is given at the beginning of the course.

Tests are given for raw materials and finished products of nitrocellulose, smokeless and compound powders. Tests for the high explosives, TNT, amatol, picric acid, ammonium picrate, nitrostarch explosives, tetryl, are followed by consideration of primers, igniters and initiators. Sampling is simply discussed. The index is quite thorough.



A Course in Powder Metallurgy. By Walter J. Baeza, F.A.I.C. Reinhold Publishing Corporation. 1943. 6" x 9". 212 pp. \$3.50.

This is a useful basic book in the fast-developing field of powder metallurgy, designed as an introductory text for students and as a source book for instructors. The author, consulting chemist, is instructor of a U. S. Engineering, Science, and Management War Training Course given on the subject at the College of the City of New York.

The book covers material on the history of powder metallurgy; laboratory and plant processes; underlying theories; equipment and materials for student instruction which will also be of interest to industrial organizations; and experiments to explain the significance of the theories discussed.

For those entering the field, the book is an excellent introduction. A basic understanding is given though many improvements and specialized processes are not described. For instance, under spray guns, no mention is made of the Metalayer and Metallizer. Other late developments are still essentially trade secrets, but ample data is given in this text to cover the fundamentals.



Advanced Quantitative Analysis. By Hobart H. Willard and Harvey Diehl. D. Van Nostrand Company, Inc. 1943. 457 pp. 6" x 81/4". \$4.75.

This volume contains many observations on the behavior of materials, which are ordinarily omitted in texts, and an assemblage of worthwhile methods of analysis.

After suggestions on sources of information, the methods of record-keeping, handling of platinum and care in the use of perchloric acid are given. The general operations of inorganic quantitative analysis, accuracy of methods, sampling, and preparation for determination of constitutents are ably discussed. Special attention is given to the anal-

steels, and the alkali metals.

A chapter on the determination of the elements with a summary of behavior in the form of a chart is excellent. On the determination of the atomic weights, the material is brief, and the section on spectrographic methods deserves further development.

The book is to be warmly recommended for its individuality. It is a companion volume to Elementary Quantitative Analysis by Willard and Furman.



A SHORT COURSE IN QUANTITATIVE ANALYSIS. By Hobart H. Willard, N. Howell Furman, and John F. Flagg. D. Van Nostrand Company, Inc. 253 pp. 6" x 81/4". \$2.50.

This book is a condensed course for students whose specialization will be in other fields. The theory has been shortened and simplified, and manipulations and procedures are clearly given. A preliminary acquaintance with general chemistry and physics is presumed. For brevity, the elements of interest and vitality which are so important to the student are left for the instructor to supply. Material somewhat in excess of that required in the normal term of fifteen weeks of work is given, which permits some freedom on the part of the instructor to select the material of particular interest to his class.

ysis of iron ore, steel, and alloy GAS CHEMISTS' MANUAL OF DRY Box Purification of Gas. By Gilbert E. Seil, F.A.I.C. American Gas Association, Inc. 289 pp. 61/2" x 91/4". \$5.00.

> This is a comprehensive volume on the action of the dry box in the purification of heating and illuminating The physical chemist and chemical engineer will find many interesting facts and supporting data on the properties of the various forms of oxide of iron, the practical and theoretical equilibria and limiting values for removal of hydrogen sulfide and nitrous oxide. evaluation of the gas-purifying materials by tests, specifications, and other standards is elaborated and brought up to date.

> An annotated bibliography is given in the form of abstracts of papers, books, and patents, classified according to subject. To those interested in the reactions of gases and solids under conditions of practical experience, this book is a contribution of information not readily found elsewhere.



Textile Research Institute, Inc., 10 E. 40th Street, New York, N. Y., has published a transcript of a symposium on the results of army work in a report entitled, "The Functional Properties of Clothing Fabrics," which may be obtained for fifty cents.

Marvel Awarded Medal

Carl Shipp Marvel, professor of organic chemistry at the University of Illinois, has been awarded the 1944 William Nichols Medal of the New York Section of the American Chemical Society.



The Journal of Chemical Education, for December, contains an article on "Problems of Scientific Literature Research" by Gustav Egloff, Mary Alexander, and Prudence Van Arsdell; and an article on "The Importance of Technical Writing in Chemical Education" by Florence E. Wall, F.A.I.C.



Blueprints, publication of the National Tool Company, Cleveland, Ohio, features "The Profit Motive in Industry" by Dr. George B. Cutten, president emeritus of Colgate University, in its latest issue.



Bakelite Review features "Propellers from 'Pregwood' " in its latest issue.



A new catalog of technical books has been issued by The Chemical Publishing Company, 26 Court Street, Brooklyn 2, New York. Copies may be obtained by request to the publisher. "Post-War Jobs," a booklet published by General Motors Corporation, contains an address by Alfred P. Sloan, Jr., chairman of General Motors, which was given before the Economic Club of Detroit recently.



New classes are forming at the Plastics Industries Technical Institute, 122 East 42nd Street, New York, N. Y. Courses cover plastics materials, design and manufacture of products, and applications.



Walter J. Murphy, F.A.I.C., editor of Industrial and Engineering Chemistry, spoke at a meeting of the Detroit Section of the American Chemical Society, December eleventh, on "The Chemist's Responsibility in War and Peace."



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Meeting Dates

- Feb. (date to be selected). Miami Valley Chapter. The AMERICAN INSTITUTE OF CHEMISTS. University of Cincinnati, Cincinnati, Ohio.
- Feb. 24. Baltimore Chapter. THE AMERICAN INSTITUTE OF CHEM-ISTS. Loyola College, Baltimore, Maryland.
- Feb. 29. Pennsylvania Chapter.
 The American Institute of
 Chemists, Temple University, Philadelphia, Penna. Speaker: Dr. Ivor
 Griffith, president Philadelphia
 College of Pharmacy and Science.
 "Research in Pharmacy."
- Mar. (date to be selected). Miami Valley Chapter. The American Institute of Chemists. Ohio State University, Columbus, Ohio.
- Mar. 3. Chicago Chapter. THE
 AMERICAN INSTITUTE OF CHEMISTS.
 Huyler's Restaurant, 310 South
 Michigan Avenue, 6:00 p.m. Speaker: Dr. Herman A. Wagner, consulting mining and metallurgical
 engineer, "Unionism and Professionalism in Scientific and Technological Fields."
- Mar. 4. Washington Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Program to be announced.

- Mar. 13. N. Y. Chapter, American Society for Metals. Speaker, C.
 G. Stephens, "The Inspection and Identification of Engineering Materials." 2 Park Avenue, New York, N. Y.
- Mar. 17. New York Chapter. THE
 AMERICAN INSTITUTE OF CHEMISTS.
 2 Park Avenue, 26th Floor, New
 York, N. Y. Speakers: Harold
 A. Swanson, National Oil Products Company, "Patents and the
 Chemist"; Ralph Ericcson, Commercial Solvents Corporation,
 "The Nitroparaffins".
- Mar. 23. Baltimore Chapter. THE AMERICAN INSTITUTE OF CHEM-ISTS. Loyola College, Baltimore, Maryland.
- Mar. 23. Washington Chapter. The American Institute of Chemists. Speaker: E. L. Luaces, president, Chemical Developments Corporation. "Patents and the Public Interest."
- Mar. 28. Pennsylvania Chapter, The American Institute of Chemists. Temple University, Philadelphia, Penna. Speaker: Dr. Gilbert E. Seil, F.A.I.C., and others: Symposium on Combustion.
- Apr. 10. N. Y. Chapter, American Society for Metals. Speaker, J. C. Mathes, "Magnesium". 2 Park Avenue, New York, N. Y.
- Apr. 12-16. American Chemical Society. National Meeting.

- Apr. 14. Miami Valley Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. The Engineers' Club. Dayton, Ohio.
- Apr. 14. New York Chapter. THE
 AMERICAN INSTITUTE OF CHEMISTS.
 Student Medal presentation. 2
 Park Ave. 26th Floor. Speaker:
 R. M. Baker, Westinghouse Electric and Mfg. Co., "Electronics and Its Application to Research and Development."
- Apr. 27. Baltimore Chapter, The AMERICAN INSTITUTE OF CHEM-ISTS. Loyola College, Baltimore, Maryland.
- Apr. 29. Washington Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Election of Officers. Program to be announced.
- May . Miami Valley Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. University of Cincinnati. Cincinnati, Ohio.
- May 8. N. Y. Chapter, American Society for Metals. Speaker, A. A. Schawtrz, "Induction Heating." 2 Park Avenue, New York, N. Y.
- May 12. New York Chapter. THE
 AMERICAN INST.TUTE OF CHEMISTS.
 Annual Business Meeting. 2 Park
 Avenue, 26th Floor, New York,
 N. Y. Speakers: W. S. Thornbill,
 Shell Development Company,
 "New Chemicals by Shell"; T.
 J. Thompson, Corning Glass
 Works, "Wartime Developments
 in Industrial Glass."

- May 13. THE AMERICAN INSTITUTE OF CHEMISTS. Annual Meeting. Hotel Biltmore, New York, N. Y.
- May 23-25. American Association of Cereal Chemists. Nicollett Hotel, Minneapolis, Minnesota.
- May 25. Baltimore Chapter. THE AMERICAN INSTITUTE OF CHEM-ISTS. Loyola College, Baltimore, Maryland.
- June Miami Valley Chapter. The American Institute of Chemists. Ohio State University. Columbus, Ohio.
- July 14. Miami Valley Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. The Engineers' Club. Dayton, Ohio.
- Aug. 11. Miami Valley Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. The Engineers' Club. Dayton, Ohio.
- Sept. . Miami Valley Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. University of Cincinnati, Cincinnati, Ohio.
- Oct. 7. Miami Valley Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Business meeting. Dayton, Ohio.
- Nov. Miami Valley Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Ohio State University, Columbus, Ohio.
- Dec. Miami Valley Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. University of Cincinnati, Cincinnati, Ohio.

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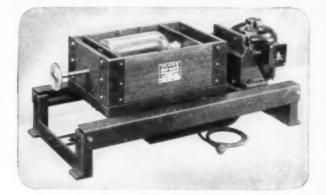
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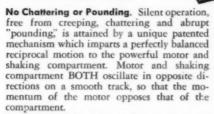


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Versutile. Especially useful for intimate mixing and agitation of solutions, emulsions, dispersions, and colloids—cutting of dyestuffs, etc. Adjustable Vessel-Container. Shaking compartment is large enough to accommodate a container up to 2-gallons capacity, and adjustable by means of a movable block.

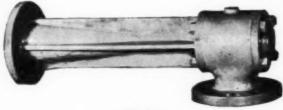
Built for Continuous Duty. Exceptionally sturdy and rigid construction. Driving mechanism is equipped with grease-sealed ball bearings; all vital parts are reinforced; all electrical equipment conforms to standards of the National Electrical Manufacturers' Association; all wiring is enclosed conforming to the National Electric Safety Code.

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